REMARKS

Claims 1 to 38 and 50 to 57 are pending in this application, all of which are rejected. Claims 39 to 49 are cancelled.

The Rejections Based Upon Prior Art

The following rejections are presented against the claims:

1. Claims 1-3, 8, 14 and 15 are rejected under 35 U.S.C. § 102(b) as being anticipated by European Patent Application 0166480 (EU '480).

On page 3, lines 10 -13 of the OA, the examiner claims that '480 inherently provides a gas stream entering the reactor with a velocity profile of no more than 10% to 5% deviation. There is no technological basis for this assertion and it is not in conformance with the requirements of the MPEP. To claim inherency, MPEP 2112 requires that the "Examiner must provide rationale or evidence tending to show inherency." "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). MPEP 2112 also directs the Examiner to In re Robertson, 169 F.3d 743 (Fed Cir. 1999), which states, "[t]o establish inherency, the extrinsic evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. [citations omitted] Inherency, however, may not be established by

probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." (Emphasis added)

In this case the Examiner has not met the prima facie case for inherency, and indeed is technically wrong. Turning to the '480 patent, Applicants note that between the impeller and the reactor there is a combustion chamber 15 with several outlets in several different directions (17, 18 and 19). Not only would the flow passing from the impeller to the reactor in '480 not become more uniform, it would become entirely disrupted due to this combustion chamber and its multitude of gas outlets. Further, because 15 is a combustion chamber, the gasses emanating from 15 would not slow the overall velocity of the gasses surrounding 15, but would increase their velocity. The Examiner's contention that '480 provides "gas flow means position between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity", is wrong both legally and technically.

Further "gas flow means position between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity", is not just limited to the housing 110, the flaring distal end section 110, but also includes the transition duct 320 with perforations in the walls 321 as described in Applicants' specification at page 15, for example.

The Examiner next states that "apparatus claims cover what a device is and not what a device does." While this is true, it does not apply to the function part of a means-plus-function claim, as is clearly pointed out in MPEP 2114 directly above where the examiner took his quote. The Examiner has confused how a device operates with how to operate a device. MPEP 2114 applies to the latter; the former requires the Examiner to go to MPEP 2183.

MPEP 2183 states the requirements for an Examiner to establish equivalency in a mean-plus-function claim:

> If the examiner finds that a prior art element
> (A) performs the function specified in the claim,
> (B) is not excluded by any explicit definition provided in the specification for an equivalent, and
> (C) is an equivalent of the means- (or step-) plus-function limitation,
> the examiner should provide an explanation and rationale in the Office action as to why the prior art element is an equivalent. Factors that will support a conclusion that the prior art element is an equivalent are: ...

The Examiner has not established any of these elements in his office action, nor provided a rationale as required. Further, the Examiner will not be able to establish the first element because of the combustion chamber in the '480 patent, as explained above. The Examiner has not met the legal nor technical burden in finding equivalency for a mean-plus-function claim.

The Examiner's claim that EU '480 "discloses all structural limitations of the claim is incorrect for the reasons just cited – nothing in EU '480 provides a decrease in gas velocity and makes it uniform – indeed the combustion chamber does just the opposite. The Examiner's 35 USC 102(b) rejection fails both legally and technically. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

2. Claims 1 and 21-23, 31, 34-35 and 38 are rejected under 35 U.S.C. § 103(a) as being obvious over Yamaguchi (U.S. Patent 5,282,355).

Yamaguchi discloses a catalytic exhaust gas NOx removal system which employs a plurality of nozzles to inject ammonia into the nitrogen oxide containing gas stream. The Office

Action states that Yamaguchi discloses a conical transition duct which constitutes a gas flow modification means for decreasing the gas flow velocity. Firstly, the specification of Yamaguchi does not mention a conical transition duct, nor does Yamaguchi mention anything about gas flow velocity or uniformity. While Yamaguchi discloses a mixer 15 in the embodiment shown in FIG. 3, the purpose of the mixer is to mix the ammonia with the exhaust gas (Col. 2, lines 10-15). However, nowhere does Yamaguchi disclose or suggest a system for catalytically treating a gas stream, which comprises, *inter alia,* a gas flow modification means positioned between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity from the impeller to the gas phase reactor as generally recited in claims 1 and 21.

As previously explained, this recitation is in 'means plus function format' and pursuant to the ruling of *In re Donaldson Co.,* 29 USPQ2d 1845 (Fed. Cir. 1994), the limitation must be interpreted in accordance with 35 U.S.C. §112, sixth paragraph and the Examiner may not disregard the structure disclosed in the specification corresponding to such language when rendering a patentability determination. Also, see MPEP 2181. For the reasons previously given in the Appellants' Brief and reiterated herein, neither EU '480 nor Yamaguchi '355 disclose or suggest anything equivalent to Applicants' invention as disclosed.

Moreover as discussed above, MPEP 2183 states the requirements for an Examiner to establish equivalency in a mean-plus-function claim:

> If the examiner finds that a prior art element
> (A) performs the function specified in the claim,
> (B) is not excluded by any explicit definition provided in the specification for an equivalent, and
> (C) is an equivalent of the means- (or step-) plus-function limitation,

> the examiner should provide an explanation and rationale in the Office action as to why the prior art element is an equivalent. Factors that will support a conclusion that the prior art element is an equivalent are: ...

The examiner has not established any of these elements in his office action, nor provided a rationale as required. The examiner has not met the legal nor technical burden in finding equivalency for a mean-plus-function claim.

In the Response to Arguments on page 21 of the Office Action the Examiner states:

> Note, the court explained that "reading a claim in light of the specification, to thereby interpret limitations explicitly recited in the claim, is a quite different thing from 'reading limitations of the specification into a claim,' to thereby narrow the scope of the claim by implicitly was advocating the latter, i.e. that impermissible importation of subject matter from the specification into the claim. See, *In re Morris,* 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997).

However, this is not a correct understanding of *In re Morris*. The disputed features of the claims in that case were <u>not</u> in means plus function format. In fact, *In re Donaldson* was distinguished from the situation in *In re Morris*:

> It is enough to point out that this case does not involve claims written in means-plus-function language to distinguish *Donaldson* from the present case. There is no comparable mandate in the patent statute that relates claim scope of non-§112 ¶6 claims to particular matter found in the specification. [Citations omitted.]
>
> *In re Morris* at 1028.

Requiring the PTO to interpret claims in the light of the specification "merely sets a limit as to how broadly the PTO may construe means plus function language under the rubric of 'reasonable interpretation.'" Accordingly, the Examiner <u>must</u> consider Applicants' disclosed apparatus and equivalents when determining the issue of patentability. As Applicants have

previously demonstrated, neither EU '480 nor Yamaguchi '355 discloses or suggests an apparatus having "gas flow modification means positioned between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity from the impeller to the gas phase reactor" or any equivalent within the scope of Applicants' claims. That is, there is no structure in either EU '480 or Yamaguchi '355 which performs the identical function as Applicants' claimed apparatus in substantially the same way to achieve substantially the same result, as required by MPEP 2183(A). Therefore, claims 1 and 21 are believed to be allowable for at least the reasons stated above.

Claim 21 additionally recites "means for recycling a portion of the flue gas from downstream of the axial fan to a convection section of the furnace located upstream of the axial fan." This recitation is also in means-plus-function format, and the arguments set forth above with respect to means-plus-function claims apply with equal force to this recitation.

With respect to claim 21, although Yamaguchi may disclose recycling a portion of the gas stream, Yamaguchi does not disclose recycling a portion of the gas flow stream to a convection section of the furnace located upstream of the axial fan, as generally recited in claim 21. Rather, Yamaguchi discloses that a portion of the exhaust gas may be recycled into the NOx removal system 6 that is located downstream from the flue 4, which is located downstream from the turbine assembly 1. In fact, nowhere in the cited passages or figures of Yamaguchi does Yamaguchi disclose an NOx removal having a convection section, much less recycling a portion of the flue gas from downstream of the axial fan to a convection section of the furnace located upstream of the axial fan, as generally recited in claim 21. Moreover, Applicants' claim 21

recites an axial fan positioned upstream of the at least one catalyst bed and downstream of a furnace and having a rotatable impeller for moving the flue gas from the furnace through the gas phase reactor. In contrast to this, the turbine assembly 1 is not positioned between a furnace and a gas phase reactor for moving flue gas. Rather, the turbine assembly 1 is where the combustion takes place of fuel 2 and air 3. In other words, turbine assembly 1 generates the flue gas.

The Office Action states:

> It is submitted whether recycling a portion of the flue gas downstream of the axial fan to either upstream or downstream of the axial fan does not alter the mechanism of purifying the flue gas stream being the fact that the flue gas stream is mixed and vaporized the reducing agent NOx upstream of the catalyst member (6) [the flue gas stream (via fan 10) is mixed and vaporized the reducing agent (via line 8) prior to reaction taking place in the catalyst member 6 of Yamaguchi '355] as evidenced by Yamaguchi '355. Furthermore, the recitation with respect to recycling a portion of the flue gas stream upstream of the axial fan is directed to the manner of operating a device, intended use, and rearrangement of parts.

First, there are significant differences between the Yamaguchi apparatus and that of Applicants. In Applicants' apparatus, flue gas is recycled from the flue gas stream exiting the axial fan to the flue gas entering the axial fan. There is no suggestion in Yamaguchi which would motivate one skilled in the art to recycle the Yamaguchi flue gas back into the turbine assembly 1 because that would involve adding flue gas to either the air or fuel entering the turbine, which would alter the combustion characteristics and turbine operation.

Secondly, as the relevant recitation of claim 21 is in means-plus-function format, it constitutes a structural limitation, not merely one of mode of operation or use.

Therefore, claim 21 is believed to be allowable over Yamaguchi for at least the reasons as stated above.

For at least the reasons stated above and those expressed in Appellants' Brief, independent claims 1 and 21 and all claims depending therefrom are believed to be allowable over Yamaguchi. Reconsideration and withdrawal of the rejection are respectfully requested.

3. Claims 2-3 have been rejected under 35 U.S.C. §103 as being obvious over EU '480 for the reasons stated on pages 5-6 of the Office Action.

The Examiner makes the statement on page 6 of the OA that "It appears EU '480 provides a gas flow modification means with the gas stream entering the gas phase ..." However, "It appears" is not a legal standard. The Examiner has the burden of proving that a *prima facie* case for obviousness exists. MPEP 2142. Three criteria define the *prima facie* case for obviousness:

> 1. The Examiner must demonstrate that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings;
> 2. The Examiner must demonstrate that combining these teaches will result in a reasonable expectation of success; and
> 3. The Examiner must show that all limitations are found or suggested in the prior art.

For the same reasons as noted above in Section 1 of this paper, the Examiner has not met element 3. That is, he cannot show that EU '480 provides "gas flow means position between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow

uniformity". Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

4. Claim 4 has been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Surette (U.S. Patent 5,632,142) for the reasons stated on page 6 of the Office Action.

The Examiner again fails to make a *prima facie* case because, as described above, EU '480 does not provide "gas flow modification means positioned between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity".

The Examiner uses Surette to include an admitted failure in EU '480 of not having a tail cone to reduce turbulence. However, Surette does not cure the deficiencies of EU '480.

First, Surette is non-analogous art. Quoting case law, MPEP 2141.01(a) teaches:

> "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." [Citations omitted]
>
> "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." [Citation omitted].

Surrette's field is not reasonably pertinent. Surrette's field is electrical generation using a gas turbine engine. One seeking to improve the performance of a catalyst bed would never logically look to gas turbines because they do not have catalyst beds. Indeed, a catalyst bed after a gas turbine would highly disrupt the turbine's operations as is described by Surrette. Therefore,

the Examiner has not demonstrated, as legally required by MPEP 2141, that Surrette is analogous art.

Even if, *arguendo*, Surette were to be considered as analogous art, the 103 rejection is still not valid. Again, to establish the *prima facie* case, "the Examiner must show that all limitations are found or suggested in the prior art." Even the combination of the Surette '142 patent with EU '480 does not include the transition duct 320 with perforations in the walls 321 as described, for example, in Applicants' specification at page 15 lines 12-20. Therefore the Examiner has not met his burden. Reconsideration and withdrawal of the rejection are respectfully requested.

5. Claims 5, 50, 51, and 53-55 have been rejected under 35 U.S.C. §103 as being obvious over the applied references (EU '480 in view of Surette '142) as applied to claims 1 and 4 above, and further in view of Tyler et al. (U.S. Patent 2,936,846) and Ishikawa et al. (U.S. Patent 5,043,146) for the reasons stated on pages 6-7 of the Office Action.

The Examiner attempts to overcome the deficiencies of the above rejection by relying on Tyler ('846). First, Tyler is non analogous art and should not be combined with EU '480. Tyler's field is jet engines (see Col 1.), a mechanical art, which has no relation to increasing the efficacy of a catalyst bed, a chemical art. Further, MPEP 2141 requires that even if the structure is similar in fields far apart, the prior art must teach the same function. The Examiner admits the perforated walls in Tyler are to control noise, not to "decrease gas stream velocity and increase gas flow uniformity." Tyler claims in column 3 lines 46 –49 that his incoming gas stream already

has a constant velocity profile, as it should be, because this is a high velocity jet engine having plug flow and not a low velocity laminar flow profile. Further, Tyler's goal is to reduce the high velocity shear and turbulent eddies that form as this plug flow enters the tail pipe. (Col 3, lines 51 –56) Clearly, the function is simply not the same. Therefore, Tyler is clearly non-analogous art.

Even if one were to assume that Tyler were analogous art, the examiner has not met another burden imposed by MPEP 2142 to find obviousness. "The Examiner must demonstrate that there is some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings." But there is nothing in Tyler that would suggest using perforations to "decrease gas stream velocity and increase gas flow uniformity."

Indeed, Tyler removes any motivation by teaching that his mechanism does so before the perforations. Tyler teaches that his cylindrical (not conical) chamber 32 induces the steady state plug (as opposed to the present invention's laminar) flow (Col. 4 lines 56-58) and the diffuser 34 decreases the velocity (Col 4, lines 62 to 64) before the exhaust reaches the wall perforation, which are there to control noise. Tyler clearly teaches that these perforation would have no effect on either velocity profile or decreased velocity because that happens upstream of his perforations. Therefore, one of ordinary skill in the art has no motivation to use the perforations in this manner and the examiner has not met his burden under MPEP 2142.

The Examiner states that "[a]lternatively, Ishikawa teaches a flow controller or guide vane unit in front of the catalyst layer."

This is not correct. While Ishikawa does teach a flow controller unit 3, he specifically calls out guide vanes as part of the prior art and not part of his invention. (Col. 4, lines 59-61).

The Examiner then states "it would have been obvious in view of Ishikawa to modify the transition duct of the applied references having perforated walls ..."

First, though not stating so, the Examiner must be relying on Taylor for the perforated walls argument, which fails as demonstrated above.

Second, Ishikawa clearly does not teach a flow control unit that both decreases gas velocity and makes it uniform. Ishikawa's grate clearly only makes it uniform, but not to change the velocity. Indeed, Ishikawa's description of the minimum spacing of his grid flow controller (Col 3, lines 29-63) makes this very clear. His invention is simply to make the velocity distribution uniform, but not decrease the velocity, as is required by the current invention.

Ishikawa fails to meet the third element required by MPEP 2142 in that it fails to provide all necessary limitations, the second element in that it teaches away from the present invention and the first element, when combined with Tyler, in that there is no motivation to combine the two pieces of prior art. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

6. Claims 6 and 56 have been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Tyler '846 and Ishikawa '146 for the reasons stated on pages 7-8 of the Office Action.

The Examiner's arguments fail for the same reasons as demonstrated in Section 5 above of this paper. Specifically, EU '480 does not teach either velocity decrease nor a uniform flow. Ishikawa does not teach velocity decrease. And Tyler, which is not analogous art, does not teach that the perforated walls will cause either velocity decrease or velocity profile uniformity. Rather, Tyler teaches that these features are achieved by his mechanism prior to the perforations, which, according to Tyler, are only for noise control. Again, the Examiner has failed to meet the third element of MPEP 2142. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

7. Claims 7 and 18-20 have been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Yamaguchi (U.S. Patent 5,282,355) for the reasons stated on pages 8-9 of the Office Action.

As noted earlier in the 102 section, EU '480 does not teach a method of achieving uniform flow and reduced velocity. Indeed, it teaches just the opposite.

Further, the Examiner contradicts himself when he states here that "Yamaguchi '355 teaches a portion of the NO_x-free exhaust gas stream is recirculated back to a position upstream of the axial fan (best understood by Examiner to be the front back of the catalyst system)."

On page 2 of the Office Action the Examiner in essence admits that the recycle is to a position downstream of the axial fan when he says, referring to Yamaguchi, " ... It is submitted whether recycling a portion of the flue gas downstream of the axial fan to either upstream or downstream of the axial fan does not alter the mechanism of purifying." Again, the Examiner

states that Yamaguchi's recycle is downstream of the gas turbine on page 10 of the office action at line 4 and again on page 13 at line 6. Indeed, by the Examiner's repeated statements, and any simple review of the figures in the '355 patent, Yamaguchi clearly is recycling downstream of the axial fan, as the axial fan is a turbine blade.

Since neither Yamaguchi nor EU '480 teach any of the limitation found in the present invention, the Examiner's claims that " it would have been obvious .... " do not meet the criteria set forth in element three of MPEP 2142. And since the remainder of the Examiner's reasoning in paragraph 7 rests upon the incorrect assumptions made about EU '480 and Yamaguchi, they fail as well. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

8. Claims 9-10 and 12-13 have been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Balling et al. (U.S. Patent 5,397,545) for the reasons stated on page 10 of the Office Action.

The examiner again mistakenly relies upon EU '480 which does not teach a method of achieving uniform flow and reduced velocity, indeed it teaches just the opposite. Balling et al. does not correct that in anyway. The Examiner has not met his burden of the *prima facie* case element (3) of MPEP 2142 and therefore this rejection must be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

9. Claim 11 has been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Carlborg et al. (U.S. Patent 6,534,022) for the reasons stated on page 11 of the Office Action.

The Examiner again mistakenly relies upon EU '480 which does not teach a method of achieving uniform flow and reduced velocity, and rather it teaches just the opposite. Carlborg et al. does not correct that in anyway, nor even mention anything similar to either limitation.

The Examiner has not met his burden of the prima facie case element three of MPEP 2142 and therefore this rejection must be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

10. Claim 16 has been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of a "prior art admission" for the reasons stated on page 11 of the Office Action.

The Examiner again mistakenly relies upon EU '480 which does not teach a method of achieving uniform flow and reduced velocity. Rather, it teaches just the opposite. The Examiner has not pointed to anything in the admitted prior art that shows a means that both decreases velocity and makes the gas flow more uniform as taught be the current invention. Applicants invite the examiner to do so with specificity so they might be better able to respond to this rejection. As it stands, the Examiner has not met his burden of the *prima facie* case element (3) of MPEP 2142 and, therefore, this rejection must be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

11. Claim 17 has been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Acaster (U.S. Patent 5,709,088) for the reasons stated on pages 11-12 of the Office Action.

First, Acaster is non analogous art for the same reason Tyler is non analogous art in that Acaster is directed to the internal parts of an internal combustion rotary engine. No one trying to improve the efficacy of a catalyst reaction would look to the internals of an internal combustion engine.

Further, the Examiner again mistakenly relies upon EU '480 which does not teach a method of achieving uniform flow and reduced velocity. Rather, it teaches just the opposite. Acaster does not correct that in anyway, nor even mention either limitation. Examiner has not met his burden of the *prima facie* case element (3) of MPEP 2142 and therefore this rejection is without basis. Reconsideration and withdrawal of the rejection are respectfully requested.

12. Claims 21-24 have been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Yamaguchi '355 for the reasons stated on pages 12-13 of the Office Action.

As discussed in Applicant's response to numbered paragraph 7 of the Office Action, Yamaguchi does not cure EU '480's failings and therefore fails to meet element 3 required for a *prima facie* case of obviousness as per MPEP 2142. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

13. Claims 25 and 26 have been rejected under 35 U.S.C. §103 as being obvious over the applied references (EU '480 in view of Yamaguchi '355) as applied to claim 22 above, and further in view of Tyler '846 and Ishikawa '146 for the reasons stated on pages 13-14 of the Office Action.

The Examiner again mistakenly relies upon EU '480 which does not teach a method of achieving uniform flow and reduced velocity, but rather just the opposite as discussed in Section 1 above in this paper in response to the §102 rejection. Tyler is non-analogous art for the reasons stated above and further does not teach toward using perforated walls to cause velocity decrease nor uniformity of the velocity profile as noted in Applicant's response to numbered paragraph 5. As an alternative in this paragraph, the Examiner again tries to apply Tyler to Ishikawa for a 103 rejection. This combination fails for the same reason as stated above in Section 5 of this paper. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

14. Claims 25 and 26 have been rejected under 35 U.S.C. §103 as being obvious over Yamaguchi '355 in view of Tyler '846 and Ishikawa '146 for the reasons stated on pages 14-15 of the Office Action.

The Examiner in this paragraph misinterprets Yamaguchi to disclose a flare outward to "gradually decrease the cross sectional area." Just as the Examiner incorrectly stated in numbered paragraph 2 of the office action that Yamaguchi teaches a "conical transition duct"

(Yamaguchi never teaches a conical duct), here the examiner now states that Yamaguchi's housing is "flared" (again, a word that does not appear in Yamaguchi).

Just as in paragraph 2, nothing in Yamaguchi ever suggests that his exhaust gas boiler 26 is configured ar adapted to achieve velocity decrease combined with uniformity of the velocity profile. Indeed, the Yamaguchi '355 patent does not indicate any necessary shape for section 4. It should be noted that the drawings in Yamaguchi are schematic and do not necessarily indicate the actual size, shape, or configuration of the components of the Yamaguchi system illustrated therein. Hence, the Examiner's assertion that the "transition duct (a)" of Yamaguchi flares outward is without support. However, even if one referred back to the drawings in Yamaguchi one would see a non-conical, non-"flared", box-like expansion chamber. There is nothing in the description nor the figures that would lead one of ordinary skill in the art to believe that the flow would become more uniform. Rather, it is obvious from the drawings that it would not. The shape shown in the figures is clearly boxy and hard-edged, not conical nor "flared" – indeed, one side does not change shape at all in the drawings. One with ordinary skill in the art would realize that these rough transitions would create vortexes and disruptions to the gas flow, not uniformity. Regardless, the burden of proof is on the examiner to show that Yamaguchi teaches that his device would provide for a more uniform flow. The Examiner has not, and cannot. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

15. Claim 27 has been rejected under 35 U.S.C. §103 as being obvious over Yamaguchi '355 in view of Surette '142 for the reasons stated on pages 15-16 of the Office Action.

Again, the Examiner states that Yamaguchi presents a "flared" and "conical" section 4, both of which contentions have been disproved in Applicant's response to numbered paragraphs 1 and 14. Surette, as discussed previously, is non-analogous art, and even if it should be considered as applicable, it does not cure Yamaguchi's failings as discussed previously in Applicant's response to numbered paragraph 4. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

16. Claim 30 has been rejected under 35 U.S.C. §103 as being obvious over Yamaguchi '355 in view of Carlborg '022 for the reasons stated on page 16 of the Office Action.

The Examiner does not even suggest in this paragraph that Yamaguchi alone teaches the limitation "gas flow means position between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity". As discussed repeatedly above, Yamaguchi does not meet these limitations. The Examiner does not suggest, nor does Carlborg provide, any cure for Yamaguchi's failings. Element 3 of the *prima facie* case of obviousness as required by MPEP 2142 has not been met and therefore this rejection is not valid. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

17. Claims 28-29 and 32-33 have been rejected under 35 U.S.C. §103 as being obvious over Yamaguchi '355 in view of Balling '545 for the reasons stated on page 17 of the Office Action.

The Examiner does not even suggest in this paragraph that Yamaguchi alone teaches the limitation "gas flow means position between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity". As discussed repeatedly above, Yamaguchi does not meet these limitations. The Examiner does not suggest, nor does Balling provide, any cure for Yamaguchi's failings. Just as Balling cannot save the failings of EU' 480 in teaching this limitation as discussed in Applicant's response to numbered paragraph 8 of the Office Action, it does not cure the failing of Yamaguchi.

Element 3 of the *prima facie* case of obviousness as required by MPEP 2142 has not been met and therefore this rejection is not valid. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

18. Claim 36 has been rejected under 35 U.S.C. §103 as being obvious over Yamaguchi '355 in view of "prior art admission" for the reasons stated on page 17 of the Office Action.

The Examiner does not even suggest in this paragraph that Yamaguchi alone teaches the limitation "gas flow means position between the impeller and the gas phase reactor for decreasing gas stream velocity and increasing gas flow uniformity". As discussed repeatedly above, Yamaguchi does not meet these limitations. The Examiner has not pointed to anything in the admitted prior art that shows a means that both decreases velocity and makes the gas flow

more uniform as taught be the current invention. Applicants invite the examiner to do so with specificity so they might be better able to respond to this rejection. Thus, the Examiner has not pointed to all of the limitation of the current claim in the prior art. Element 3 of the *prima facie* case of obviousness as required by MPEP 2142 has not been met and therefore this rejection is not valid. Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

19. Claim 37 has been rejected under 35 U.S.C. §103 as being obvious over Yamaguchi '355 in view of Acaster '088 for the reasons stated on page 18 of the Office Action.

Yamaguchi fails to provide support for a rejection based upon obviousness for the reasons stated above. Acaster is non-analogous art for the reasons stated above and should not be combined with Yamaguchi. However, even if Acaster were to be combined with Yamaguchi as suggested by the Examiner it would not cure the deficiencies of Yamaguchi. Hence, there is not sufficient support for a prima facie case for obviousness. Reconsideration and withdrawal of the rejection are respectfully requested.

20. Claim 52 has been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Surette '142 and Tyler et al. '486 and Ishikawa et al. '146 as applied to claims 1 and 4, and further in view of Zagoroff et al. U.S. Patent No. 5,476,378 for the reasons stated on page 18 of the Office Action.

EU '480, Surette, Tyler and Ishikawa are deficient for the reasons stated above, for example, in Section 5 of this paper. Zagoroff et al. is non-analogous art since it is directed to a portable heat gun, which has nothing to do with catalytic systems for treating gas flue streams. However, even if it were to be combined as suggested by the Examiner, it would nnot cure the deficiencies of EU '480, Surette, Tyler and Ishikawa as outlined above. And further, Zagoroff et al. does not meet the recitations of claim 52, which recites in relevant part: "... wherein the struts act as baffles to reduce swirl and direct gas flow towards an axial flow of flue gas through the system." Nowhere does Zagoroff et al. teach or suggest that strut 39 is for reducing swirl, as required by claim 52. To the contrary, the Zagoroff et al. strut 39 is merely for supporting the shaft around which the fan blades rotate. The Examiner has not pointed to anything in Zagoroff et al. which even suggests that reduction of swirl is desirable. Moreover, the Zagoroff struts 39 are positioned upstream of the fan blades at the intake of the heat gun. The swirl, induced by the rotation of the fan blades, cannot be affected by upstream struts. In contrast to this, Applicants' struts 145 are positioned downstream of the fan and indeed "act as baffles to reduce swirl and direct gas flow towards an axial flow of flue gas through the system" as claimed.

Accordingly there is no technical and legal basis for this rejection. Reconsideration and withdrawal of the rejection are respectfully requested.

21. Claim 57 has been rejected under 35 U.S.C. §103 as being obvious over EU '480 in view of Surette '142 as applied to claim 27, and further in view of Tyler et al. '486 and Ishikawa et al. '146 for the reasons stated on page 19 of the Office Action.

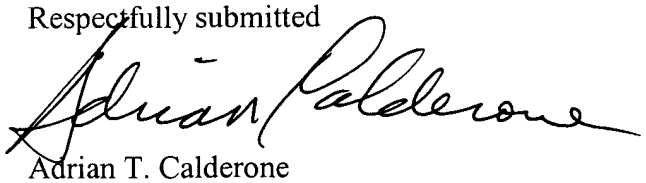
None of the cited references disclose or suggest a transition duct having perforated walls that flare outward and a guide vane unit including louvers for redirecting the flow of the flue gas. EU '480 does not show perforated walls that flare outward. Surette discloses a transition duct 109 for channeling engine exhaust to a heat recovery section. However, the walls of the transition duct 109 are not disclosed as being perforated. Tyler et al. discloses a ground exhaust noise suppressor for aircraft jet engines. The walls of the noise suppressor are perforated but do not flare outward. Moreover, the stated purpose of the perforated walls is to suppress noise which is not a concern of the EU '480 or Surette patents. These references have been discussed at length above. There is nothing in the cited references which would motivate one skilled in the art to combine the teachings of Tyler et al. with those of EU '480 or Surette. The guide vane unit 3 of Ishikawa is not positioned at the inlet of a transition duct, as required by Claim 57, nor does Ishikawa et al. cure the defects of the EU '480, Surette and Tyler et al. references.

Accordingly, none of the cited references, whether taken individually or in combination, disclose or suggest Applicants' invention as recited in Claim 57. Reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

For at least the reasons stated above all of the pending claims are submitted to be in condition for allowance, the same being respectfully requested.

Respectfully submitted



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